

Notice of Allowability

Application No.

10/527,711

Examiner

Doris L. Lee

Applicant(s)

MATSUMOTO ET AL.

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the communication filed on July 20, 2009.
2. ☒ The allowed claim(s) is/are 6-8, 16 and 17.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 8/21/09.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

/Doris L. Lee/
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796

DETAILED ACTION

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Erin Hoffman on August 21, 2009.

The application has been amended as follows:

Claim 6:

- Delete "including a topochemical polymer of muconic acid or a topochemical polymer of muconic acid benzylammonium"
- Delete "for 20 to 60 minutes"
- Delete "in an amount of not less than 1 mol/L"
- Delete the period after "fine metal particles"
- Insert at the end of the claim "wherein the lamellar crystalline organic polymer is made by topochemical polymerization and is either a polymer of muconic acid or a polymer of muconic acid benzylammonium."

2. This application is in condition for allowance except for the presence of claims 1-5, 10-12 and 18-19 which are directed to a non-elected invention without traverse.

Accordingly, claims 1-5, 10-12 and 18-19 have been cancelled.

Statement of Reasons for Allowance

3. The present claims are allowable over the closest prior art Matsumoto and Kotelnikova for the following reasons:

The present claims are drawn to a method of producing a polymer with dispersed fine metal particle in which metal fine particles are dispersed in an organic polymer comprising: preparing a metal ion-containing polymer having a structure in which the metal ion is intercalated between layers of a lamellar crystalline polymer, by mixing the lamellar crystalline organic polymer with a substance containing the metal ion said substance containing the metal ion being a metal hydroxide, said mixing being conducted by impregnating or dispersing said lamellar crystalline organic polymer in a methanol solution containing said hydroxide and reduction the metal ion in said metal ion-containing polymer so as to obtain the fine metal particles wherein the lamellar crystalline organic polymer is made by topochemical polymerization and is either a polymer of muconic acid or a polymer of muconic acid benzylammonium.

Matsumoto teaches an organic polymer having a lamellar crystalline structure having an acidic group (page 328) which are muconic acid based (page 328) and made by topochemical polymerization (page 328), it also teaches that the polymer is intercalated with alkyl amines (page 328), however it fails to teach a method for producing a polymer with dispersed fine particles in which metal fine particles are dispersed in an organic polymer. Matsumoto teaches that the polymer is a polymer of a diene having a carboxylic group (page 329).

Kotelnikova teaches a crystalline polymer matrix made of cellulose (Abstract) in which fine metal particles are dispersed via the following method: The crystalline

polymer is mixed with a substance containing the metal ion and then the metal ion is reduced to obtain the fine metal particles (page 447, Experimental, Materials and procedure section). It is noted that in the experimental section of Kotelnikova, silver nitrate is mixed with a solvent of water, NH_4OH , DMSO and glycerol; when silver nitrate is mixed with NH_4OH , it is noted that silver hydroxide is necessarily present in the mixture due to the disassociation/re-association of ions in an aqueous media. However, Kotelnikova fails to teach or suggest that the solvent is methanol and that the crystalline polymer matrix can be a muconic based crystalline polymer.

In light of the above, it is clear that rejections of record are untenable and thus the present claims are passed to issue.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Doris L. Lee whose telephone number is (571)270-3872. The examiner can normally be reached on Monday - Thursday 7:30 am to 5 pm and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Doris L Lee/
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796